Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Electron impact dissociation of molecular ions[1] E.M. BAHATI, M.R. FOGLE, C.R. VANE, M.E. BANNISTER, Oak Ridge National Laboratory, V. ZHAUNERCHYK, R.D. THOMAS, Stockholm University — The ORNL Electron-Ion Crossed Beams Experiment is used to determine absolute cross sections for electron-impact dissociation of molecular ions. Investigations have been carried out on DCO^+, CH_3^+, and N_2D^+ cations, considered as amongst those species playing important roles in such diverse areas as laboratory plasmas, astrophysics, and thermonuclear fusion. The obtained results on dissociation of DCO^+ resulting in CO^+ fragments are discussed in light of the energy levels and photo-dissociation cross section of HCO^+predicted by *ab initio* multi-reference configuration interaction calculations [Koch et al, 1995 *Ber. Bunsenges Phys. Chem.* **99** (3) 393]. Preliminary results on CH_3^+ are compared to the measurements of Lecointre et al [*XXIV ICPEAC,* Rosario, Argentina, 20 - 26 July 2005; (Poster Session)]. Results for dissociation of N_2D^+ producing ND^+ are also presented.

[1]This research is supported by the US Department of Energy, Office of Basic Energy Sciences and Office of Fusion Energy Science, Division of Chemical Science under contract DE-AC05-000R22725 with UT-Battelle LLC.

E. M. Bahati

Date submitted: 27 Jan 2006 Electronic form version 1.4